[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-0094; Project Identifier AD-2021-01251-E]

RIN 2120-AA64

Airworthiness Directives; CFM International, S.A. Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to adopt a new airworthiness directive (AD) for all CFM International, S.A. (CFM) LEAP-1B21, LEAP-1B23, LEAP-1B25, LEAP-1B27, LEAP-1B28, LEAP-1B28B1, LEAP-1B28B2, LEAP-1B28B2C, LEAP-1B28B3, LEAP-1B28BBJ1, and LEAP-1B28BBJ2 model turbofan engines. This proposed AD was prompted by the detection of melt-related freckles in the billet, which may reduce the life of certain compressor rotor stages 6-10 spools, high pressure turbine (HPT) rotor mid seals, HPT rotor stage 2 disks, low pressure turbine (LPT) stage 2 disks, and LPT stage 3 disks. This proposed AD would require revising the airworthiness limitations section (ALS) of the applicable CFM LEAP-1B Engine Shop Manual (ESM), and the operator's existing approved continuous airworthiness maintenance program (CAMP) to incorporate reduced life limits for these parts. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to https://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: (202) 493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact CFM International, S.A., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH, 45125; phone: (877) 432-3272; email: fleetsupport@ge.com. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

Examining the AD Docket

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2022-0094; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Mehdi Lamnyi, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7743; email: Mehdi.Lamnyi@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2022-0094; Project Identifier AD-2021-01251-E" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to https://www.regulations.gov, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Mehdi Lamnyi, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA was notified by the engine manufacturer of the detection of melt-related freckles in the billet, which may reduce the life of certain compressor rotor stages 6-10 spools, HPT rotor mid seals, HPT rotor stage 2 disks, LPT stage 2 disks, and LPT stage 3 disks (life-limited parts (LLPs)). The manufacturer's investigation determined that, as a result of such freckles forming in the billet, these LLPs may have undetected subsurface anomalies that developed during the manufacturing process, resulting in reduced material properties and a lower fatigue life capability. Reduced material properties may cause premature LLP fracture, which could result in uncontained debris release. As a result of its investigation, the manufacturer determined the need to reduce the life limits of these LLPs. To reflect these reduced life limits, the manufacturer revised the CFM ALS, Chapter 05 of LEAP-1B ESM. Additionally, the manufacturer published service

information that specifies procedures for the removal and replacement of these LLPs before reaching their new life limits. The FAA is proposing to require operators to update the ALS of the applicable CFM LEAP-1B ESM, with the reduced life limits for these LLPs.

This condition, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the airplane.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information under 1 CFR Part 51

The FAA reviewed CFM High Pressure Compressor Rotor Life Limits LEAP-1B-05-11-02-01A-0B1B-C, Issue 009-00, dated July 26, 2021 (CFM LEAP-1B-05-11-02-01A-0B1B-C); CFM High Pressure Turbine Rotor Life Limits LEAP-1B-05-11-03-01A-0B1B-C, Issue 006-00, dated July 26, 2021 (CFM LEAP-1B-05-11-03-01A-0B1B-C); and CFM Low Pressure Turbine Rotor Life Limits LEAP-1B-05-11-04-01A-0B1B-C, Issue 006-00, dated June 1, 2021 (LEAP-1B-05-11-04-01A-0B1B-C). CFM LEAP-1B-05-11-02-01A-0B1B-C provides new high pressure compressor rotor life limits. CFM LEAP-1B-05-11-03-01A-0B1B-C provides new HPT rotor life limits. CFM LEAP-1B-05-11-04-01A-0B1B-C provides new LPT rotor life limits. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Other Related Service Information

The FAA reviewed CFM Service Bulletin LEAP-1B-72-00-0342-01A-930A-D, Issue 002-00, dated July 26, 2021 (LEAP-1B-72-00-0342-01A-930A-D). LEAP-1B-72-00-0342-01A-930A-D specifies procedures for removing and replacing the LLPs, and provides new life limits for certain serial numbers of the LLPs.

Proposed AD Requirements in this NPRM

This proposed AD would require revising the ALS of the CFM LEAP-1B ESM, as applicable to each affected engine model, and the operator's existing approved CAMP to incorporate reduced life limits for certain LLPs.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 378 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Revise ALS of Engine Manual and the operator's existing approved CAMP	1 work-hour x $85 per hour = $85	$0	$85	$32,130

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a

substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Would not affect intrastate aviation in Alaska, and

(3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

CFM International, S.A.: Docket No. FAA-2022-0094; Project Identifier AD-2021-01251-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to CFM International, S.A. (CFM) LEAP-1B21, LEAP-1B23, LEAP-1B25, LEAP-1B27, LEAP-1B28, LEAP-1B28B1, LEAP-1B28B2, LEAP-

1B28B2C, LEAP-1B28B3, LEAP-1B28BBJ1, and LEAP-1B28BBJ2 model turbofan engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compressor Section, and JASC Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by the detection of melt-related freckles in the billet, which may reduce the life of certain compressor rotor stages 6-10 spools, high pressure turbine (HPT) rotor mid seals, HPT rotor stage 2 disks, low pressure turbine (LPT) stage 2 disks, and LPT stage 3 disks. The FAA is issuing this AD to prevent the failure of the high pressure compressor, HPT rotor, and LPT rotor. The unsafe condition, if not addressed, could result in release of uncontained debris, damage to the engine, and damage to the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

Within 60 days after the effective date of this AD, revise the airworthiness limitations section of the applicable CFM LEAP-1B Engine Shop Manual and the operator's existing approved continuous airworthiness maintenance program by incorporating the following service information:

(1) CFM High Pressure Compressor Rotor Life Limits LEAP-1B-05-11-02-01A-0B1B-C, Issue 009-00, dated July 26, 2021; and

(2) CFM High Pressure Turbine Rotor Life Limits LEAP-1B-05-11-03-01A-0B1B-C, Issue 006-00, dated July 26, 2021; and

(3) CFM Low Pressure Turbine Rotor Life Limits LEAP-1B-05-11-04-01A-0B1B-C, Issue 006-00, dated June 1, 2021.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards

District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (i)(1) of this AD and email to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(i) Related Information

(1) For more information about this AD, contact Mehdi Lamnyi, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7743; email: Mehdi.Lamnyi@faa.gov.

(2) For service information identified in this AD, contact CFM International, S.A., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH, 45125; phone: (877) 432-3272; email: fleetsupport@ge.com. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

Issued on February 3, 2022.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.
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